The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions relating to the proposed Export of Natural Gas from the Province of Alberta.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session: November 6, 1950.

Volume 6.

I N D E X

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W I T N E S S E S

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VOLUME 6.

NOVEMBER 6, 1950.

9.30 A. M. Session

MR. FENERTY: If it pleases the Board, I would like to make a correction in a statement in one of my questions to Mr. Mackenzie. It might not have any particular significance, but I would like to correct the figure on page 448 of Volume 5. I asked Mr. Mackenzie if he could verify certain figures. He could not remember them offhand and I can see now perhaps one reason why he could not. On page 448 I said, "The figure I have in relation to Turner Valley is an item of about 6¢ allocated for gathering compression costs, of which 40% is being charged against absorption plant operations and the remaining 60% in effect against the consumers, and that leaves a net of 3.5¢ charged against the consumers of which about 1/3 of a cent is compression costs." Now that 1/3 of a cent, according to the figures I have, are repressuring costs. My figures are that the 3 cents of the entire 6 cents is compression costs. I just want to make that correction, 1/3 ¢ the cost of repressuring, of the 6 cents, and approximately 3 cents compression cost.

A. FAISON DIXON (Recalled)

Direct Examination by Mr. Nolan:

Q You will recall on Friday at the adjournment Mr. Dixon had completed the reading of his report and had been stood down for the purposes of cross-examination. Now I am going to ask Mr. Dixon if there is anything else that he would like to add to the evidence that he has already given

in chief?

A Yes, there are two things that I would like to mention. One I will not go into in any detail but I would like to go on record that in the discussion between Mr. Davis and myself in regard to coring and cuttings in Jumping Pound, that his very interesting paper that was presented here, as far as I can see has no reference to his testimony in regard to the thickness of the strata and does nothing in rebuttal of my testimony in regard to that. I will not go into that unless the Board requests me to.

There is another matter where I would like to bring out an agreement in place of this agreement, this is in regard to gas-cap and solution gas in Leduc. In going over the transcript, it seemed that someone seemed to misunderstand the column following page, or just before page - in the tabulation just before page 10, that I have D3 Gas Cap Lower Cretaceous. That might have been a misunderstanding. It is D3 Gas Cap and Lower Cretaceous this is supposed to represent and part of these amounts are from the Lower Cretaceous wells and the gas cap.

Q DR. GOVIER: The word "and" should be inserted?

A The word "and" should be inserted there.

Now in regard to this Leduc gas we are all in fairly close agreement, for such things almost exact agreement in regard to the amount of gas which is available above ground there. If we take all of the estimates of the Imperial and add them together, they give 980 billion. They do not take in any Lower Cretaceous in that, as I suppose they were considering that as a gas field

and not as anything to do with solution gas. If you add 155 billion Lower Cretaceous we will be in almost exact agreement, except I do not put any Redwater or Golden Spike for any recoverable solution gas. Mr. Davis' estimate does not differ in its aggregate from ours. He has a slightly higher gas available from the gas cap and lower in the others. I explained why his was lower.

Now we come to the question of when and how this gas is going to be produced. The Petroleum Consultants in their submission which has not yet been testified to state in regard to the reserves: "Again we are in close agreement with Mr. Davis." Then they say, "Actually, one of the gas caps will be produced to some extent daily, as will be evidenced by increasing gas/oil ratio. As a matter of fact, the gas cap may never be opened to straight gas production. Instead, all of the gas in the gas cap may ultimately be produced through the oil wells, and this may take place to a considerable degree over the next 30 years."

Now, that is saying in a qualitative way what I have been trying to express in a quantitative way. If the Board would care for it, I would - -

MR. S. B. SMITH: What is this that Mr. Dixon has been reading from?

MR. C. E. SMITH: What I read from on Friday.

MR. DIXON: It is J-15. I forgot to put down the page.

MR. S. B. SMITH: One of the exhibits that is in but which has not been dealt with?

MR. DIXON: It is one that has not been dealt with, yes.

MR. C. E. SMITH: Page 6 of Western, entitled: "The deliverability characteristics of the Gas Supply presently serving Canadian Western Natural Gas Company Limited and Northwestern Utilities." It is page 6. Am I right?

A Yes, sir.

MR. NOLAN: Has that been given an Exhibit number?

MR. C. E. SMITH: Not yet. I referred to it on Friday.

MR. NOLAN: Then it is not correct to say it is J-15 yet?

MR. C. E. SMITH: No.

THE WITNESS: Here is a report that I made for the Federal Power Commission on the Skerry County and Canyon Reef fields which have some considerable resemblance to the field here. Now that is the only copy I have available here but I have eighteen that I am trying to get from New York and I will be glad to furnish them to anybody that will give me their names and wishes me to send it to them.

MR. NOLAN: Perhaps that could be given an exhibit number?

DOCUMENT NOW MARKED
EXHIBIT J-17.

A Now, the very large elaboration of that was due to the fact we had plenty of time and the active co-operation of the staffs of several very large companies and we were able to

use all the help which we could possibly use. Now the important question is in regard to how fast that gas will come out. It does not seem to be coming for instance in regard to gas in the solution gas. That gas in the gas cap, according to some of the testimony, is thought to be able to stay there and to be used afterwards. Other testimony besides my own disagrees with that. Now there has been no testimony anywhere here that shows from past experience that that is ever going to happen. In fields of this type of limestone, very mixed porosity and permeability in Eunice and South Eunice in New Mexico and in the Langley Field or North Gowden in Texas and Goldsmith in Texas, they were all fields with gas caps very much like this and the gas came out from the gas cap, coming out from the gas cap along with the oil. If anyone can testify to a field in a dolomite or limestone where there is a great irregularity in porosity where they have been able to preserve the gas cap, that would be a thing that would show that it could be done, but as far as I know it never has been done. I have had the privilege of working on fields that are somewhat of this type that are now producing between 4 and 5 hundred million cubic feet per day. It then comes to how fast this gas will come out and it depends on how fast the oil will come out. We have to figure the same allowable as is now in force. That is all we have to go on. If that allowable is kept in force, we will all agree that in 10 or 12 years 80% of all the oil will be gone. We will all agree, I think, that at that time, to get the oil you would have to be producing very large quantities of gas. Now,

the Board itself is the one that sets the allowables and it would certainly be presumptious on my part to tell what is going to happen.

MR. C. E. SMITH: The Board would not mind if you would make a guess, I do not think, Dr. Dixon?

THE WITNESS: My guess is this, it is going to be about as it is now. The reason for that is that this oil, as I understand, is slightly preferable to any other oil here. It is being produced at a really slow rate and I should think it would hold at that unless other big fields come in and they have no facilities for taking the gas and where you have to pro rate the oil around the various other fields, that this will hold about steady. If other big fields do come in then there will be more gas with that oil and we will be all the better off as far as gas is concerned than we are now, although this field might not be the field that is producing the gas.

Now, the matter came up of a gasoline plant. Before the gasoline plant was constructed in Leduc at the suggestion of Imperial I made contact with the Phillips Petroleum Company to put in a gasoline plant there. At that time they considered the amount that they were taking was about 40 million cubic feet a day. The Phillips men came to Toronto. It was impossible to give them more than 2 or 3 days to make a decision and so on account of purchasing materials the Imperial had already obtained and all that, the idea was dropped and the Imperial built a plant themselves.

Q MR. C. E. SMITH: Did you say 40 billion?

A 40 million cubic feet. I may say this that if Imperial does not wish to handle the gasoline from Leduc that those that I am associated with will be very glad to handle it. There is no question at all that that gas can be taken and used and it can be made a reasonably profitable operation. I would like to mention one little thing we can give directly in regard to the drilling of wells. We have had contracts originally with the Imperial which we dropped or let it become null and void ahead of time so that they could sell their holdings in Kinsella to the Edmonton company. We still have a contract with the Shell for any excess gas above 20 million that is now contracted for. Then we have a contract with the Standard of California. I would like to just read a little piece of this contract. The contract is already in evidence here, as it was put in along with the application.

"Seller now has three gas wells in the Jumping Pound field. Upon notification from Buyer that it has received delivery from the mills of at least 15,000 tons of steel for construction of Buyer's pipe line system, Seller shall with reasonable diligence commence and drill an additional well in said field, and following completion of said well, whether as a producer or a dry hole, shall commence and drill another well; provided, however, if Seller so elects Seller may drill either one or both of such wells prior to the time when Buyer is privileged to give such notification. If necessary for performance of

"its obligations under this contract, Seller shall drill additional well or wells in said field and shall pay all charged and do all acts necessary to keep its leases in good standing and free from any default; provided, however, Seller shall not be required to drill any wells which would not be drilled by a reasonably prudent operator under similar circumstances, shall not be obligated to drill more than one well per 640 acres of productive area, and shall not be required to retain acreage which, in its judgment, has been condemned by development."

Q MR. C. E. SMITH: What page are you reading from?

A Page 4, article 4.(a). Then it goes on saying that they do not have to drill wells that a reasonable prudent operator would not drill. That shows that they have obligated themselves to drill additional wells in this land that has been mentioned as being turned down and as not being worth while drilling. I think that they ought to be the people who would know most about it because they own and operate a good part of that field.

(Go to page 487.)

Q THE CHAIRMAN: Have you got any further correspondence with Shell relating to that, Mr. Dixon?

A Yes, we have a great deal of correspondence with them. They have given us each month a renewal of our contract and the Standard of California has given us a renewal up to the end of the year.

Q MR. NOLAN: The contract you are referring to is the Standard of California?

A Yes.

Q Not the Shell?

A This is not the Shell contract, the Standard of California.

Q Well, Mr. Dixon, is there anything you would like to add to what you have told us this morning?

A I think that is all.

Q Well then, perhaps you will answer my friends if they want to cross-examine.

MR. S.B. SMITH: I have no questions, sir.

MR. FENERTY: If you please, I do not intend to cross-examine Mr. Dixon. I want to make this observation, the probabilities are that I may not cross-examine any other witnesses and it is not because I necessary acquiesce in anything that they have said, but I feel I have brought out anything that I could possibly help the Board with and it would be mere repetition to continue. My position is going to be unless there is some entirely new point that needs consideration I won't cross-examine and will endeavour to shorten the Hearing.

CROSS-EXAMINATION BY MR. D.P. McDONALD:

Q I just have one question, Mr. Chairman, and that is with regard to the statement following page 17 of your submission J-13. It is entitled, "Future Natural Gas Requirements for the Province of Alberta". Dealing with the fourth item down, Mr. Dixon, that is"Ford, Bacon & Davis Incorporated for Westcoast Transmission Company Limited (Exhibit 40, Westcoast Hearing)", under the heading, "Future Requirements within reach of Grid", you have 1,472,438 MCF. Now, I take it you arrived at that figure by taking three-fifths of the 50-year estimate made by Ford,Bacon & Davis?

A I think we figured it out - - I just forget exactly the way we did figure that. I think that was the method.

Q I just wanted to bring to your attention that the estimate made by Ford, Bacon & Davis, it was calculated on a pipe line growth that was set up on graph form for the entire 50 years, and it is not necessarily true that this three-fifths of the total will be the figure for 30 years?

A No. There is none of these that were exactly comparable. We had to make an estimate the best we could.

Q And you are not purporting to say that is the exact estimate?

A No. In none of these cases is it the exact estimate, it approximates them.

Q In each of those estimates I believe you have added future requirements in the Province, or what is called additional possibilities, you evaluate them as being part of the Gas Company requirements in each case?

A Yes.

Q Thank you.

CROSS-EXAMINATION BY MR. STEER:

Q Mr. Dixon, these figures will probably be familiar to you and probably I need not refer to the exhibit. Your gas reserves total 5,995,000,000, would that be right?

A You mean the total gas reserves? Repeat that, please.

Q 5,995,000,000?

A Yes, that was the testimony.

Q And those are taken from Hume?

A Partly from Hume.

Q With some early revision by you?

A I take it it is very little.

Q Then in the table that follows page 19, you propose gas withdrawals for 30 years which will reduce the reserves to 1 trillion 6, is that right?

A That is the reserves from these fields that are to the right of that. That does not include the Province, of course.

Q After 30 years?

A Yes, but you understand that does not purport to include the Province.

Q Quite so. And then after the 30-year period you allow for local consumption, domestic consumption, but you allow nothing at all for export?

A After the 20-year period we allow nothing for export.

Q Quite so. After 20 years you allow nothing for export but your consumption domestically goes on for the remainder of the period up to 1980?

A That was the request made by the Board. We figured it in that way.

Q What I am asking you about has to do with gas available for the local companies, Canadian Western and Northwestern, and your suggestion the other day was that we would have 1 trillion 6 to supply the deficiency of which Mr. Davis spoke. Do you remember that?

A Yes.

Q And if we take these figures that we are looking at and leave out, as you say, the rest of the Province, then that 1 tillion 6 has got to be reduced if export goes on after the 20 years?

A That is correct.

Q And is it your idea that we could connect up this Province to an export system and cut them off at the end of 20 years with gas still available in the Province?

A If that is the contract we enter into originally, certainly.

Q There would not be any objection to that?

A I do not think there would be. If it was known in advance that would be the agreement. Of course, everybody believes that by that time there will be a super-abundance of gas in the Province and probably other lines will be built long before that.

Q I will ask you just one other question. Is it possible that Dr. Hume's estimates, obtained in the way they were and obtained by you from him, could be 25% high?

A I think that would be almost - - anything is possible in this world but I think that would be absurd to think of. Now, the Imperial submission says that they consider Dr. Hume's estimates of probable gas as a very conservative estimate.

Q Quite so.

A For the gas that can be recovered.

Q Now, Dr. Hume gets his figures by going to people concerned and getting their information and then he uses that information, using his judgment on it?

A Yes.

Q Without any personal investigation whatsoever?

A Well, that is the way that everybody, even the companies, do. You speak of personal investigation in regard to net estimates of gas reserves. There is no such thing. You always are relying upon the records, there is nothing else to rely upon. Even the engineers of the company itself have to rely on the integrity and powers of observation of those that are on the rig.

Q Quite so. I appreciate that. So that your idea would be 25% error would not be possible in Dr. Hume's estimates in the way in which they were given, is that right?

A Yes, sir.

CROSS-EXAMINATION BY MR. MARTLAND:

Q Mr. Dixon, I wonder if you could tell me just what is the relevance in a study of the requirements and supply of natural gas for Alberta and other markets of details of the ownership and control of Western Pipe Lines? I do not quite follow.

A There were statements made in the submission of the Inter-Field that were contrary to fact, and as they were being made and remarks made about our companyies, which also were not true, I thought that should be brought to the attention of the Board.

Q We will leave those remarks of yours with regard to Inter-Field to be dealt with by my friend, Mr. Mahaffy, who represents Inter-Field, but I did not quite follow the relevance of the remarks with regard to Western Pipe Lines in the discussion which was supposed to be dealing with Alberta reserves and deliverabilities.

A It would not be if that had not been brought up in a submission already presented here, it would be entirely irrelevant, but as long as an irrelevant matter was brought up which was derogatory to our company I thought it was only fair that I bring that to the attention of the Board. And as far as the Western Pipe Lines is concerned, as far as that has such an intimate connection with the International Utilities, which in turn makes it connected with the local gas companies here, and they in turn inter-connect with the Inter-Field, you can not explain one without explaining the other.

Q You are not purporting to refer to any submission so far filed by Western Pipe Lines, Mr. Dixon?

A Yes. Not by Western Pipe Lines, no, by Inter-Field.

Q And are you suggesting that the control of Western Pipe Lines is in any way different from the control as outlined in Colonel Baxter's statement to this Board?

A Well, he gives the impression, I do not remember whether he said it or not, this was an entirely Canadian dominated company.

Q I do not think he did, Mr. Dixon. You referred the Board to the fact that the parties interested in Western Pipe Lines were Osler, Hammond & Nanton Limited, Nesbitt

Thomson & Company Limited, Wood-Gundy & Company Limited, and International Utilities Limited?

A Yes.

Q Now, that was his statement. Would you draw from that that it was completely under Canadian control?

A No, but certainly there was an insinuation all through the statement that they have, that it is not only Canadian controlled but Albertan controlled, which is apparently not a completely accurate statement.

Q An insinuation of that kind from Western Pipe Lines, Mr. Dixon, because I would like to know if there is?

A As far as Western goes, I do not know that it did insinuate that.

Q You are not suggesting that International Utilities has control of Western Pipe Lines, Mr. Dixon?

A It has not the majority of the stock.

Q No.

A But I would say practically speaking it had control.

Q I see, even although you have taken care to publish in this exhibit the respective amounts contributed by the parties and their respective proportion in which they are to contribute further funds?

A Even so, as International is the company which has easy access to money, they have the biggest single piece of stock in these companies, and generally persons with the biggest single block is the one that has the best chance to dominate it. Of course. control of a company, as we found out in the case of the Prairie company, is something that can shift over night and the statement of intent has

nothing whatever to do with what may happen in the future.

Q Just get back to that last statement, Mr. Dixon. You have stated here categorically that International Utilities have the largest individual interest in Western Pipe Lines. I would like to know on what basis you justify that statement?

A Well, I was quoting from memory. I will have to refer back.

Q You refer to your own exhibit on page 25.

A They have 15,000 shares.

Q In Western Pipe Lines?

A Oh, pardon me, page 25. Well, it is the same amount as I say by memory at fault. They have the same amount as Osler, Hammond.

Q Did you know that Osler, Hammond & Nanton Limited were the general managers of the project Western Pipe Lines?

A No, I do not think I did.

Q Are you suggesting that International Utilities has any interest whatsoever in Osler, Hammond & Nanton, Limited?

A I have no idea. They may, they may not, I do not know. Osler, Hammond & Nanton may have an interest in International, I do not know. They certainly have a friendly interconnection, to say the least.

Q There has been a great deal of research done, Mr. Dixon, up to date. You are not making that suggestion?

A I just do not know, and there would be no way to find out.

Q And you are suggesting that this part of the brief was with a view to meeting a proposed monopolistic control of gas, is that it?

A That was the entire object.

Q And what you propose is that a Deleware Corporation owning a 60% interest in an Alberta Grid Company should look after the gathering of gas in the Province of Alberta and its export?

A Owning a 60 up to possibly - - it would certainly be 51% interest but probably Alberta Grid Limited will have somewhere between 40 and 50, which makes a little difference, but that 40% will be owned by Albertans, not by stock brokerage houses outside of Alberta, which I would think would be much better for the Province than to have the control rest in Winnipeg and Toronto.

Q In view of what you said a moment ago, Mr. Dixon, you are not suggesting that 40% would exercise control, would you?

A No. Another point I would like to bring there, I do not think it would be possible to finance a company or to get the permits for export unless they are all as a unit. I do not see how that can be done but maybe the attorneys can think of some method it could be. When it comes to financing a financial house will want to know just how the gas is to be had and for an intermediary in between would make that very difficult. There would have to be more money, more interest paid on money, which would mean that Alberta would be getting less for its gas than they otherwise would.

Q Well, Mr. Dixon, your exhibit, page 25, had indicated a confirmation of what Colonel Baxter told the Board, the interest of the various parties in Western Pipe Lines, of which the greater percentage is owned in Canada. Would

you like to tell us what are the respective interests in Northwest Natural Gas Company at the present time?

(Go to page 497)

A I mean to say I have not the lists with me. Would you like me to give you the Board of Directors of the Northwest Natural Gas Company?

Q Not unless they have changed since your opening statement which was filed as an exhibit?

A No, they have not changed since then. Of the Board of Directors, there were fourteen directors, there are one, two, three, four, Canadians - five Canadians. No, four Canadians.

Q But Inunderstood.....

A No, five Canadians on the Board of Directors.

Q I understood from the evidence which you gave that the syndicate which set up Northwest Natural consisted of yourself, Mr. Brokaw, Mr. McKee, Mr. Logan and Mr. Hand, is that correct?

A Originally, yes, that is the incorporators.

Q All Americans?

A Yes.

Q And Mr. Hand, by the way, at that time, was a director of International Utilities, wasn't he?

A Yes.

Q There was no objection to him on that ground?

A Well, he became a director of International Utilities afterwards.

Q Yes?

A He was not a director of International Utilities when the company was formed, and he was one of the original directors. He joined International Utilities for a short time after that.

Q And who were the associates who were added to the syndicate,

Mr. Dixon?

A Then there was a Mr. Simonson.

Q Yes?

A He is an American, he is with Morgan Stanley, a partner.

Q A large American banking house?

A Yes. And Mr. W. C. Langlie, the head of another large banking house. Mr. Kelley is a director in Toronto. Mr. Austin Taylor of Vancouver. Mr. McMillan of Vancouver. Mr. Charles Leonard, he is a New York financier, and Mr. William Burns, a gentleman who has been associated with me for a long time, a mining engineer.

Q Yes?

A Those are the ones that joined - pardon me, Mr. Eric Harvie, whom I do not believe I have mentioned before, of Calgary. Those are the ones that joined the Syndicate afterwards.

Q And would those be the major shareholders today in Northwest Natural?

A The major shareholders, if you want them in a group, although they do not control the majority of the stock, are the five original directors.

Q Thank you.

.....

CROSS-EXAMINATION BY MR. MAHAFFY:

Q Mr. Dixon, in connection with your Exhibit 13, your exhibit J-13, you, in the latter part of that exhibit have made some references, as you mentioned a moment ago, to the Alberta Inter-Field Gas Lines Limited, and in the first part of those references, and I am referring to Page 20 now, running on to Page 24 - have you the portions

of the brief that I mentioned now, Mr.Dixon?

A Yes, sir.

Q Now, you did not actually read this portion of the brief to the Board on Friday, but in this brief you make certain interpretations of the Alberta Inter-Field plan, and you throw out the suggestion and the idea that that plan will result in substantially increased as rates to the City of Edmonton. You know the portion of your brief that I am referring to?

A Yes.

Q That is right, isn't it?

A If the scheme was carried through it would be my belief there would be a substantial increase in the gas rates in Edmonton.

Q Now, was this portion of the brief written by you personally, Mr.Dixon?

A Yes, sir.

Q And you are familiar with all the details in this portion of the brief?

A I think so. I may have made errors, and maybe forgot.

Q In any event, you are the man that prepared these pages 20 to 24, is that right?

A Yes.

Q Now, on Page 20, Mr. Dixon, in the second paragraph, you make this statement:

> "Inter-Field proposes to build a 100-mile 22-inch pipe line from some point near Leduc to the low pressure area of the Viking-Kinsella field. During the summer months, or at any time when there is excess gas at Leduc, the plan is to compress

"the Leduc residue gas, from a pressure near atmosphere to 750 p.s.i." -

per square inch -

"transport it to the Viking-Kinsella field, and inject it into the low pressure part of that field."

I have read that correctly, have I?

A Yes, sir.

Q Now, what I would like to know, Mr.Dixon, if you would be good enough to tell me, where you got that information?

A The Stone & Webster Report.

Q Will you tell me what part of the Report that was?

A I do not have that Report here, but I can get it for you.

Q That was the document.....

MR.NOLAN: Exhibit 70.

Q MR.MAHAFFY: You refer to Exhibit 70 in the Westcoast Transmission case, is that the document that you refer to?

A That is it. Now, take it over at the map in relation to this Report.....

Q Yes, which map are you looking at, Mr. Dixon?

A Well, either one, I believe, shows it. There are only two maps in the Report, and they both show it. They show the 22-inch line approximately 100 miles long starting at the compressor station near Leduc and going to the low pressure portion of the Viking-Kinsella field. That is there I get that part of the statement.

THE CHAIRMAN: Mr. Mahaffy, you have not got

an extra copy of that,here, have you?

MR.MAHAFFY: Yes, sir, I have and I will give it to you.

THE CHAIRMAN: Thank you.

MR MAHAFFY: Mr. Dixon has just referred, Mr. Chairman, to the two maps in the back of the Stone & Webster Report. One is marked Plan I and the other is marked Plan II.

THE CHAIRMAN: Yes.

Q MR.MAHAFFY: Now, Mr. Dixon, you say that that 22-inch pipe line connects up with the Leduc field?

A With the compressor plant, so that....

Q The compressor station?

A The compressor station, yes, that is what is shown in there.

Q Now is there anything else in the Stone & Webster Report on which you are relying for your statement that I read to you from your exhibit?

A Yes, it is where they mention - I cannot see it. "This makes it desirable to utilize"....

Q What page are you on?

A Page 10. ".....a dry gas field as a storage field."

Q On page 10?

A Yes.

Q Yes?

A "This makes it desirable to utilize a dry gas field as a storage field. Kinsella has the desirable characteristics as a storage field." And so on. That has been denied by your own witness since then.

Q Well, that is what you suggest. However, let us skip

that for the moment. You are reading from the bottom of Page 10, are you?

A No, I have jumped over to Page 11.

Q Yes?

A On Page 11, "Approximately 64 million per day will be drawn from the field on winter peak days and an equal amount will be returned on minimum days during the summer." I think that is sufficient for that.

Q Now, are there any other references that you are depending on, because I want to be sure?

A No, I think that is all I can do. I think that covers my statement. I think there is some place here where they say 750 pounds, but that is a minor point.

Q Well, then, as a basis for your statement in the second paragraph on Page 20 of Exhibit J-13, you were depending on the plans attached to the Stone & Webster Report, and the statement appearing on Page 11 of the Report?

A And the maps.

Q That is what I said?

A Yes, the two maps. I was depending on the whole Report. And that was my source of information entirely.

Q All right. In view of your answer I must come back to this, what are the other references in the Report on which you are depending for that statement?

A There may be some others, but I think that is sufficient. I will rest on that.

Q Well, I want to know, Mr.Dixon, what those others are?

A I mean,I cannot - unfortunately, I cannot take the time of the Board to read this entirely through again, but I think that the statement I have made is confirmed by

what I have read.

Q Now, you have told me that the first source of information is the maps, certainly, you have told me that, and the statement on Page 11 .....

A On Pages 10 and 11.

Q Yes. Are there any others?

A It is on Pages 10 and 11.

Q Pages 10 and 11?

A Yes.

Q Are there any other statements on which you were depending?

A Not that I can remember right now. I think Pages 10 and 11 will cover it. Oh, here, the pressure of 750 pounds is mentioned on Page 12.

Q Page 12?

A Yes, which I take it would be the pressure that would be used, but that is a very minor point.

Q That is the sentence which says, is it, "The pressure at the inlet to the Westcoast line will be 750 p.s.i."?

A Yes. There may be some other reference to it that I do not see right now. Oh, yes, on Page 13. "This is particularly true of the Edmonton station when in the summer it will be necessary to take gas at 750 p.s.i.g. from the grid for repressuring of the Kinsella field." I think that covers the case now.

Q Page 13?

A Yes.

Q Well, now, Mr.Dixon, having made this statement on Page 2?

A What page did you say?

Q Page 20, I am sorry, of your exhibit J-13, and we have been talking about the second paragraph on that page, and then in the next paragraph you refer to your own grid system?

A Yes.

Q That is the proposed grid system?

A Yes.

Q And then on Page 21, near the top of the page, the first paragraph on that page, you say this,-

> " Let us analyze this plan of the Inter-Field Company. The gas reserves and possible deliverability of Viking-Kinsella are sufficient to supply all the newds of Edmonton, including peak day loads, for a period of at least twenty years. This gas now is being, and undoubtedly will continue to be, supplemented by some gas from Leduc, thus lenghthening still further the life of Viking-Kinsella. The gas that is supplied directly to Edmonton from Leduc does not need to be raised to a high pressure."

Then you go on and mention that you have been informed that the price being paid by the utility for the Leduc gas is 4.5 cents, and then you give the Board your idea of what it will cost the utility to put that Leduc gas into storage at Viking-Kinsella?

A Yes.

Q And you estimate 9 cents a thousand, that is right, isn't it?

A That is correct.

Q And then at the bottom of Page 21 you say this:-

"This gas goes into a vast reservoir and will not be needed by the Edmonton system until the deliverability of the Viking-Kinsella field has reached a low point, and not then if any other cheaper sources of gas are available. The storing of this gas at Viking-Kinsella will cost about 9 cents per MCF. This must be currently paid for by the consumers."

That is your statement there That means the Edmonton consumers, does it not?

A Yes.

Q And to the extent this gas is stored the price or cost to the consumer must be proportionately increased, and then you go on to give the details, and then in the last sentence of the paragraph there you say,-

"Any such extra cost would go to pay for some uncertain advantage twenty years hence."

A Yes.

Q And then in the next paragraph you say,-

"It seems doubtful that the altruistic feelings of the Edmonton gas consumers toward the next generation will be strong enough for them to be willing to pay substantially more for their gas now. The main advantage would be to the oil companies. If they cannot dispose of their gas some way, either by pipe line or by flaring, oil and gas production must be stopped."

And then in the next paragraph you say,-

"The scheme of the Inter-Field is not the ordinary practice used in gas storage,"

and your complaint, I believe, if I interpret it correctly, is that you say that the scheme of Inter-Field is to put gas in there and leave it for some twenty years, and then start pulling it out, is that right?

A Well, if you put gas into a very large reservoir, like you put water into Lake Superior, you might be taking some of that gas out, but it would be immaterial whether that was the exact gas that you would be taking out of not.

Q Perhaps we had better read what you said in your Exhibit J-13, that might shorten it a bit.

In the third paragraph on Page 22, you say, -

"The scheme of the Inter-Field is not the ordinary practice used in gas storage, which is to put gas into storage in the summer and take it out during the winter. The idea here is to store gas to be used at some far distant date. Whether or not the same gas that was put in the ground during the summer is taken out during the winter makes no difference, because an abundance of gas, aside from any gas stored, is available for use in the Edmonton system and at higher pressure than in the area where it is prepared to store gas."

A Yes.

Q Then on Page 23, you point out that in comparison with your plan no extra cost is put on the gas consumer of Edmonton; and in the following paragraph you also refer

in the last sentence, you say this,-

> "Edmonton will be protected in exactly the same degree as if the local utility company had gone to the hugh expense".....

you are referring to your own scheme, and you say,-

> "Edmonton will be protected in exactly the same degree as if the local utility company had gone to the huge expense (paid for by the people of Edmonton) of putting gas back into the ground in the Viking-Kinsella field."

Now, those are all your statements in Exhibit J-13, are they not?

A Yes, and I still.....

Q And you still stand by them?

A Yes, I still stand by them.

Q Now, in addition to the questions I have asked you concerning Paragraph 2 on Page 20, Mr.Dixon, dealing with that portion of your exhibit generally, did you get any information concerning the Alberta Inter-Field scheme anywhere other than the Stone & Webster Report, and, perhaps we will say, Exhibit 69, the Statement of Mr. H. R. Milner?

A I think that was my full source of information.

Q That was the complete source of what you are setting forth about our scheme in your statement?

A Yes, and there was the general knowledge, of course, on things that we knew, like the reports.

Q Well now, Mr. Dixon, you have Stone & Webster's report, Exhibit 70, in front of you, I believe. Will you please indicate on those plans that you are depending on the 20-inch gas line from near Leduc to Kinsella that you are referring to?

A It is marked very plainly on the map.

Q Is that the line going from the compressor station at Edmonton to the Viking-Kinsella?

A Yes.

Q Do you see any connection from that line to the oil field at Leduc?

A There is a little - - it is not shown, but the text gives you the impression that that is what is meant.

Q I wish you would tell me where in the text that impression is given?

A I already have.

Q That is the reference you have already made, is it?

A Yes.

Q Now let us stay with the map for a moment, and looking at the legend which is in the left-hand corner, to assist you. Is there anything on this map indicating a connection from the Leduc oil field to the Viking Kinsella field?

A There is nothing shown on the map indicating that.

Q Not a thing, is there?

A No.

Q MR. C. E. SMITH: There is a fly has gone across it but the legend does not show what they mean. There is a bunch of dots.

Q MR. MAHAFFY: The dots you mentioned a moment

ago and those that are now being mentioned by my friend, have you any idea what that is? Are they referred to in the legend?

A They are not apparently referred to in the legend. No, I must admit I do not understand unless that is the oil line. That could be the line from Leduc going into Edmonton, but I do not know.

Q It is abundantly clear to you, as an engineer, that that line is not connected to the line you have reference to, which goes to Viking-Kinsella, has it?

A It is not shown on the map.

Q As a matter of fact, that light dotted line shows jumps over the two major grid systems?

A I presume that is the low pressure line from Leduc to Edmonton.

Q And has nothing to do with the grid at all?

A No, I do not think it has. It is shown on the map but I do not think it has anything to do with that.

Q As far as this map is concerned the Leduc gas field or the Leduc oil field is not connected to this grid system at all, is it?

A Not as far as the map is concerned.

Q Now let us turn to your reference to the text. You mentioned pages 11, 12 and 13?

A By the way - all right, go ahead, pardon me.

Q Go ahead, Mr. Dixon?

A On page 11 the 22-inch line from Kinsella will be integrated with the Northwestern field gathering and Edmonton gate station. That means that it would be generally connedted

up, I would think,although it is not shown on the map.

Q That is on page 11?

A Page 11, the second paragraph.

Q Yes. Well, now, let us go to this text of this Exhibit, Mr. Dixon, and if the Board will bear with me for a moment I would like to go over one or two sections of this with you, to connect up this point. First of all, will you have a look at page 5 of Stone & Webster's report, that is Exhibit 70. The fourth paragraph on page 5. You say this:

> "The following fields are now connected to the Canadian Western and Northwestern Utilities' systems; Foremost, Bow Island, Turner Valley and Viking-Kinsella. Leduc is now being connected to the Northwestern system."

Next you say:

> "The fields proposed to be connected to the grid are Pendant d'Oreille, Manyberries, Princess-Patricia, Pincher Creek, Jumping Pound, Morinville and the fields of the Legal-Picardville area. Viking-Kinsella will be connected to the grid as a peak load demand and minimum load storage field. These fields with their acreage reserves, and reservoir pressures are listed in Table 2."

Now in the paragraph which I have just read, being the fields to be connected to the grid, do you find the Leduc field, Mr. Dixon?

A No.

Q Will you look at Table 2 which the text says are the

fields to be connected to the grid?

A Is that in the back?

Q In the back, Table 2?

A Yes.

Q Do you find Leduc there as being one of the fields to be connected to the grid?

A It is not so listed.

Q Now let us turn to pages 10 and 11. Starting at the bottom of page 10, I believe it is one of the paragraphs on which you are depending for your statement. Now the bottom of page 10:

"During the summer the minimum gas delivery requirements from the grid are less than the total average rates from Pincher Creek and Jumping Pound. This makes it desirable to utilize a dry gas field as a storage field. Kinsella has desirable characteristics as a storage field. Its limits are known and it will unquestionably play a major role in the future peak load requirements of Alberta. It is, therefore, proposed to run a line from the grid in the vicinity of Edmonton to the Kinsella field which will be used to flow gas in either direction. Approximately 64 million per day will be drawn from the field on winter peak days and an equal amount will be returned on minimum days during the summer. The total withdrawals and returns for the year will balance so that the full benefit of the Kinsella gas reserves will be available to Northwestern Utilities.

Moreover, the 22-inch new line

"from Kinsella can be integrated with Northwestern's field gathering and Edmonton gate station facilities, so that it will strengthen that system and as future loads develop in Edmonton compressors can be added at Kinsella to deliver gas to Edmonton above the grid peak load requirements. It is possible that recent load experience at Edmonton may make a new line imperative shortly, in which case it might be built by Northwestern, with an arrangement to also carry peak load gas for Inter-field."

Is there any suggestion there, any statement there, Mr. Dixon, that any of that gas going into the Viking-Kinsella under that scheme is to come from Leduc?

A Yes, I should say it was suggested, although it is not said directly that it is proposed to run a line from the grid in the vicinity of Edmonton to the Kinsella field, and flow gas in either direction.

Q Yes?

A You have already selected to use Leduc in Edmonton, wherefore if there is any gas goes from Leduc, unless it is used entirely in Edmonton, it will then have to go either into the grid or into storage. That would have to be disposed of somewhere. You cannot be having - I take it this whole idea in mentioning it is that the Leduc gas is to be conserved.

Q I am referring now to this statement on which you are basing your statement in Exhibit J-13. You say you have

based your statement of fact that Leduc gas is being repressured in the Viking-Kinsella for something like 20 years or more, and what I am asking you is on pages 10 and 11 which we have just read, do you find any suggestion of that kind?

A Why, yes.

Q If the same amount that is taken out in the winter is returned in the summer, that balances it off, does it not?

A You are taking the same amount in and out possibly each year, but if you take that by your scheme, as I understand it - I may be wrong - that gas will come from other sources than from Leduc to supply the needs of Edmonton until such time as it cannot supply it and then the gas will come, as it comes now,from Kinsella. I may be wrong in my interpretation of the general plan, if there is any excess gas from Leduc, although I do not see where they say that categorically, that would either then have to go into the grid, into storage, or be flared thoughI suppose naturally that you would be making use of the gas rather than flaring it.

Q You are guessing now?

A I am considering that you people are excellent engineers and believe in conservation.

Q Let us turn for a moment then to page 14 of this Stone & Webster report, Mr. Dixon. On page 14, we say this:

> "Advantage of the high gas pressure available at Jumping Pound is taken by designing the Grid from Edmonton to Pakowki for 1200 pounds per square inch gauge. This feature also takes advantage of the

"high pressure at Pincher Creek during periods of low load. During periods of high load, all of the Pincher Creek gas will flow into the western pipeline at 750 pounds per square inch gauge. At low loads excess gas from Jumping Pound will flow northward to repressure Kinsella. Local deliveries of gas to communities .... " and so on and so forth.

That is gas going from the South to the North to be repressured in Kinsella. Is that not right under this scheme?

A This is gas going from Pincher Creek and from Jumping Pound back to Kinsella and no difference in conditions in the price that is paid than my estimate, because the cost of gas in Jumping Pound is 10¾¢, higher than what I have stated. So that the same general statement I have made still stands exactly, if they take the gas from Leduc or Jumping Pound, only it would be worse from Jumping Pound.

Q Let us turn to page 25, the bottom of the page.

"The line from Edmonton Station to the Kinsella field is not needed for initial operation. If the installation of the line with its compressors is not made immediately it will defer an investment of $7,300,000. The need for it as a peak load source for the gathering system may come later than the need of a similar line for the supply of gas to Edmonton by Northwestern in which case it can be designed for joint use with attendant savings in investment and annual costs. When built it will not only have value as a peak load supply in winter but will serve as a repressuring line

"to Kinsella for summer storage of surplus gas from other fields."

Now, Mr. Dixon, having gone over these statements in Stone & Webster's report, and refreshing your memory with respect to them, do you still consider the statements that you have made in your Exhibit J-13 correct?

A Yes. For this reason, that if the gas is used from Leduc these statements are correct. If the gas is not used from Leduc these statements have no bearing one way or the other.

Q Is it not fair to say this, that Stone & Webster's report, neither in the plan nor in the text, shows any connection whatever with the oil field at Leduc?

A Well, Leduc - - No, that is not true. It may not have a direct physical connection to it, as I say, but nonetheless if Leduc will be supplying gas to Edmonton it makes it an integral part of the whole system.

Q In what way?

A Because it is gas coming to Edmonton which otherwise has to be supplied from Kinsella or elsewhere. It is part of the general scheme.

Q Mr. Dixon, let us get down to brass tacks. There is absolutely no connection between the Leduc field and the Kinsella field, according to this plan of Stone & Webster's that we have been looking at, is there?

A Not directly, no.

Q No. Now then, in view of that, is your statement that "Inter-field proposes to build a 100-mile 22-inch pipe line from some point near Leduc to the low pressure area of the

Viking-Kinsella field. During the summer months, or at any time when there is excess gas at Leduc, the plan is to compress the Leduc residue gas from a pressure near atmosphere to 750 pounds per square inch transported to the Viking-Kinsella field and injected into the low pressure part of that field."

That just simply is not correct, is it?

A I would not say so, no, not in that way you are putting it, but as I will explain it would be implied in a proper engineering study that some use would be made of the excess gas at Leduc.

Q But there is no mention made of the scheme that you have set up in Stone & Webster's report?

A No, I have not found it.

Q And then based on that submission you go on and indicate in your report that Alberta Inter-field is going to tie on a 9 cent repressuring charge or something of that sort, on to the Edmonton consumer?

A I already in my testimony have said that I thought that this idea had been dropped. Wherefore, you cannot say that I am saying they were going to tie it on.

Q That is what you suggest ih your statement that Alberta Inter-field is going to tack on something like an additional 9 cents on to the Edmonton consumer?

A That is right. I said if the line is built to there and you would use Kinsella as a repressuring field it will cost that and any advantage that might accrue to Edmonton must be paid for by Edmonton. But that advantage is a long way hence.

Q You are not overlooking the statement in Stone & Webster's report on page 5: "Leduc is now being connected to the Northwestern system"?

A Yes, I know that.

Q That is the fourth paragraph, the last line of that short paragraph very clearly shows that Leduc is now being connected to the Northwestern system. You knew that, didn't you?

A Yes.

Q And yet you still suggest that the plan of Inter-field was to pick up that gas and repressure it at Viking-Kinsella and store it there for a large number of years and charge up the cost of that to Edmonton consumers. Do you suggest that is the Alberta Inter-field scheme?

A No, not now, because - -

Q Do you suggest it ever was?

A Yes, I say that was the original scheme.

Q You still make that contention?

A Yes.

Q Now, Mr. Dixon - - Mr. Chairman, I am going to pass on to another phase of my cross-examination. I do not know whether you want to go on now?

THE CHAIRMAN: This might be a convenient time to recess.

(There was a short adjournment taken.)

Q MR. MAHAFFY: Mr. Dixon, dealing with the latter part of your Exhibit J-13, commencing at page 24. Now in the examination this morning by Mr. Martland you said on one or two occasions, perhaps more, that the statements

made by Inter-field are not correct. What statements are you referring to?

MR. NOLAN: What do you want?

A I think I have a copy here. "The promoters of the Northwest Natural Gas ...."

Q MR. MAHAFFY: What are you reading from?

A Page 2.

Q Page 2 of what document?

A Alberta Inter-field Gas Lines Limited, Exhibit 69.

Q Page 2?

A Yes.

"The promoters of Northwest Natural Gas Company, an entirely American undertaking."

That is not an accurate statement. Then on page 3 where they talk of the advantages of the Inter-field grid over any other grid. I think there are none of those advantages whatever. That would not occur to any grid. There is one disadvantage which is not mentioned here of the Inter-field grid in that it would make that a monopoly, practically speaking, of all the gas in Alberta in the hands of one group.

Q Yes, but you see what I want to get at here is what statements are you referring to when you say that Inter-field has made statements which are not correct?

A "The promoters of Northwest Natural Gas Company, an entirely American undertaking." That is not correct.

Q Now you told me that, what else?

A Then I think there is somewhere here where you say that the Inter-field will be controlled and operated by Albertans, or should be controlled and operated by Albertans.

Q I wish you would find me that because I don't remember it?

A I can find it in - -

Q DR. GOVIER: There is a reference on the sixth line of page 1 , Mr. Dixon. Is that the one you are looking for?

A No. Is controlled and operated by Canadians, that is not what I am looking for. I can find the statement put out by Inter-field to that effect. It is not in this exhibit. I do not know whether it is proper for me to refer to that or not. But here is a pamphlet put out by - - entitled Natural Gas in Alberta and it states that it is issued by Inter-field Gas Lines Limited.

Q MR. MAHAFFY: It is clear, Mr. Dixon, that as Dr. Govier pointed out, on page 1 of Exhibit 69 there is a statement that it would be controlled and operated by Canadians. You say that the statement has been made that it will be controlled and operated by Albertans?

A That is in this brochure that shows on page - - well, the pages are not numbered -- but under Control, "Any gas gathering system available for export of gas, should be principally owned in Canada and controlled in Alberta." That is not a correet statement.

Q That is just an opinion expressed?

A No, sir. I have documentary proof of that.

Q Now, just a minute. You are reading now from a brochure that is not in as an exhibit. It says, "We consider that any gas gathering system available for export of gas should be principally owned in Canada and controlled in Alberta."

You say that is not right? That is an expression of opinion by the writer of that?

A Well, the suggestion is that the Grid is controlled in Alberta.

Q Are you talking of shareholder control or control of its operation by the Public Utilities Board and other proper Government agencies?

A I am speaking in this case of any grid, no matter who owns it, is equally controlled by the proper authorities here. But I suppose that reference is to the ownership and the control of stock.

Q All right, well, that may be the subject of argument. That is the other point you say is not correct. What is another point that you object to as being incorrect, or is there any other?

A You give the suggestion here that"The activities of the Inter-field Company will be subject to the jurisdiction of various regulatory Boards and of the Legislature of the Government of Alberta. Its carrying charges can be controlled. This cannot be said of a system or systems owned and dominated by foreign corporations." That is not a true statement.

Q You object to that, do you?

A Yes, because no matter who - suppose, say, Inter-field would sell out all the stock in Inter-field to a foreign corporation, you would still be controlled by the Alberta Government and ownership of the company has nothing whatever to do with whether or not control rests in the Alberta regulatory authorities or not.

Q That is your opinion, Mr. Dixon? You realize there may be different opinions as to that?

A No, I do not think there can be any reasonable difference of opinion on that. That is my opinion.

Q Are you familiar with the ramifications of our Canadian constitution?

A No, not all. I know just one or two very small points.

(Go to page 522.)

Q Do you realize that some pipe lines are under Provincial control and some are under Dominion control?

A I realize that, yes.

Q So there might be some question there depending whether or not, and speaking of the Grid, it was part of an inter-Provincial system or purely a Provincial system?

A It is stated categorically, or you are stating an opinion and I am stating an opinion.

Q It is a difference on opinion, not a difference on a question of fact, isn't that right?

A Maybe so.

Q Now, you also told my learned friend, Mr. Martland, and I am not sure that I have the correct wording, I just got it down as quickly as I could in my slow-moving handwriting, that you resented the attack which Alberta Inter-Field made on you?

A Yes.

Q What attack are you referring to?

A In their saying that we are a company entirely controlled, entirely an American company, and I think it is in the Western, some statements that are not true. They have it in this. Wait a minute. In the first page of this,

> "The Alberta Natural Gas Grid, incorporated under the laws of the Province of Alberta, a subsidiary of Northwest Natural Gas Company, plans to build and operate a collective grid system in some fields in Southern Alberta."

Now, that is a submission that is absolutely true in a way but the supposition when you say it plans to connect

some fields is that it is not going to have a grid over the Province. I should say that is not a correct statement.

Q Well, it is correct, is it not, that only some fields be connected?

A Some fields in Southern Alberta. Well, of course, you can say that is absolutely mathematically correct, but the supposition is, any one would think in reading that that our plants connect only with some fields in Southern Alberta and not build a line up in the region of Edmonton.

Q And do you resent being called an entirely American undertaking?

A Yes.

Q The statement there in Exhibit 69, page 2, is this:

> "The promoters of Northwest Natural Gas Company, an entirely American undertaking....."

Now, isn't Northwest Natural Gas Company an entirely American undertaking?

A No, but the supposition then again is that the Grid is an entirely American undertaking. The Grid is part of the Northwest Natural Gas Company.

Q Mr. Dixon, first, is Northwest Natural Gas Company an entirely American undertaking?

A No.

Q In what way is it not?

A Because a very considerable amount of stock is owned outside of the United States.

Q There is complete share control on the American side, is that not correct?

A That is right.

Q And some shares owned on the Canadian side?

A Yes.

Q That is what you were pointing out, is it?

A Yes.

Q And then when we come to the Grid company, there are three companies, aren't there, the Northwest Natural Gas Company and the Alberta Natural Gas Company and the Alberta Natural Gas Grid Limited, is that right?

A Those are the three companies, yes.

Q Now, who owns the controlling interest in the Alberta Natural Gas Grid Limited?

A At the present time there is only the directors' shares out. Whether or not that will be an entirely owned subsidiary of the Northwest Company, the Northwest Company is entirely a subsidiary of them, of the Canadian Crown company, or just what the scheme of ownership will ultimately be, we do not know.

MR. NOLAN: I think there is some confusion, Mr. Mahaffy, if I may say so. You asked about the Grid Company?

A I thought you were speaking of the Alberta.

Q MR. MAHAFFY: No, the Alberta Natural Gas Grid Company.

MR. NOLAN: Mr. Mahaffy is asking you about that.

A Oh, pardon me, I misunderstood. The Grid Company is owned 40% by residents or companies that are resident in Alberta that have a right to increase that proportion and probably

will up to slightly under 50%.

Q MR. MAHAFFY: Yes, and who holds the balance?

A The Northwest Natural Gas Company.

Q Northwest Natural Gas Company. That is the American gas line company, the parent company?

A Yes. That might be changed, I do not know. It would make no material difference. The Alberta Natural Gas Company may be the owner of both of them, for example. That might be the better method and I think that is what it will be, that the Crown company will be owner of the Grid company, but that is not material as the Crown company in turn will be controlled by the Northwest Company.

Q By the Northwest Company?

A Yes.

Q So the whole layout is controlled by the Northwest Natural Gas Company?

A That is quite true.

Q Absolutely?

A There is no question about that.

Q No question about it, no. Now, you mention in your Exhibit J-13 the arrangement in connection with the Grid Company whereby you say that 40% is now held by residents of Alberta, and as you have just told me, the other 60% is held by the Northwest Company, but you say that the ratio will be kept constant in the future and you refer to an agreement. What is the nature of that agreement?

A Verbal agreement.

Q A verbal agreement. Between or among what parties?

A Among the owners of the 40% and the Northwest officials including myself.

Q And that obligation on the part of the corporation, Northwest Natural Gas Company, has not been reduced to writing?

A No.

Q The corporate seal therefore obviously has not come into play or anything like that?

A Not yet.

Q So really it is something you have in mind that has not yet been done?

A Well, I should say it will be done when a few people make an agreement, even if it is verbal. I say that will be done.

Q Now, I do not know that it has an awful lot to do with what the Board is worrying about right now, but it has come into this picture through your J-13. Who are the shareholders who comprise the 40% holdings in your Grid?

A The Globe Oil Company Limited of Calgary, the Petroleum Incomes of Calgary and I think that is still in the name of Clifton C. Cross, Hanna Petroleums Company, the Athabaska Utilities Limited, and that may still be in the name of Mr. Thorne, General Petroleums Limited of Calgary, Western Leaseholds Limited, the Yates Investment Limited, Cowan W. Moir of Federated Petroleums Limited, W.J. Dick of Edmonton, the Chief Mountain Oils Limited and it is now in the name of John S. Smith of Cardston, and the Dalhousie Oil Company Limited. Those are the direct owners. Now, they may have distributed that to some of their subsidiaries or affiliates, which I do not think it would

serve any purpose to read them, it is about twenty other companies, the subsidiaries of those companies.

Q Is there any restriction on the transfer of those shares?

A No.

Q They can be transferred to anyone?

A Yes.

Q Then I believe they were sold for 10 cents each, is that right?

A That is correct. I might say that is a hard thing to figure but the ownership of those shares in these companies and their affiliates represents more or less 27,000 shareholders as near as we could figure it out. Of course, there may be a great amount of duplications in that.

Q And as far as you know, those shareholders may have transferred and sold their shares to people in Timbuctoo or anywhere else?

A Theoretically possible but practically not. Of course, anything can happen to the ownership of shares. We found that out.

Q Now, Mr. Dixon, you have made a statement in your exhibit J-13 on page 26, down at the bottom of the page:

> "As of the same date, Colonel Baxter owned 5,000 shares; Nesbitt & Company 5,000 shares; Wood & Company 5,000 shares; out of a total outstanding of 15,005 shares of Class B stock. The holdings of Nesbitt Thomson & Company and Wood-Gundy & Company in the Class B stock stand in the name of nominees."

Will you tell me how you got that information and what

was the source of your information? I am only interested in the last part where you say that these shares stand in the name of the nominees.

A That was in some document that I had here. That is the record of the Edmonton office of the Registrar of Joint Stock Companies, which I think in my workings here was gotten by attorneys. They say that the holdings of Nesbitt Thomson & Company stand in the name of nominees and the holdings of Wood-Gundy & Company in the Class B stock stand in the name of a nominee.

Q Who gives you that information?

A This is a statement which was gotten up for me and it appears to come from the records of the Edmonton office of the Registrar of Joint Stock Companies.

Q Yes, but whose report are you reading from?

A This is a report gotten up by our attorneys.

Q Your attorneys?

A Yes.

Q And you are not prepared to say, I imagine, that that is the information on the Registrar of Companies' file?

A I do not know where that source of information was.

Q If I told you that I had telegrams from individuals of these companies stating that the companies did not own or control any Class B shares of Alberta Inter-Field Gas Lines, would you be willing to accept those?

A Well, I would be willing to accept the statement but it would not be the statement as of a former date.

Q Now, Mr. Dixon, on the Registrar of Companies' record the names of those companies do not appear, do they, the

shares are shown as in the names of the individuals?

A There was an agreement. I have here an agreement, International Utilities.

Q Mr. Dixon, perhaps to save time your attorney could clear this up, your counsel, Mr. Nolan.

MR. NOLAN: Well, I think you might clear it up, you must know who owns the shares in your own company.

MR. MAHAFFY: I am telling him and I am asking him to agree with me.

A I have a record here of the ownership.

MR. C.E. SMITH: Is this something as terribly important as time?

MR. MAHAFFY: I do not think it is. That is why I thought Mr. Nolan could perhaps straighten it out because Mr. Dixon has made this statement on pages 26 and 27.

MR. S.B. SMITH: It does not seem to have anything to do with the reserves of Alberta.

MR. MAHAFFY: The only reason I am going into it is because Mr. Dixon has brought those matters into the tail-end of his brief.

MR. C.E. SMITH: Probably because I should have objected to that part of the brief when it was submitted.

Q MR. MAHAFFY: You have no further information on these shares then, Mr. Dixon?

A No, I have no further information except this was furnished. I should think it would be much easier for you to give testimony on the ownership.

EXAMINATION BY MR. NOLAN:

Q MR. NOLAN: There was some discussion took place between Dr. Govier and Mr. Davis as to storage. The question I am reading is by Dr. Govier on page 189 of the transcript of the Joint Hearing. The question is this:

> "What, in your opinion, is the possible role of storage projects in the future operation of the utility systems and particularly in relation to their extremely low load factors?"

There is quite a long answer and I will only read one portion of it, if I may. This is Mr. Davis at the top of page 191:

> "Generally the storage fields are selected as close to the market as they can be found, a lot of them in the neighbourhood of Pittsburgh, in Ohio, not far from Cleveland; in Kansas City Service Gas Company has them as close as they can get to Kansas City; in Oklahoma the Oklahoma Natural Gas Company search for fields not too far from Tulsa. And the question is, you are interested in Alberta. Well, at this time Edmonton is only 80 or 90 miles from the field that is delivering its gas, and when Leduc becomes more important as a source of gas, that distance is even very much less. I do not know, sir, whether you are thinking of the time when possibly gas might be brought 200 miles and dumped into a storage field close to Edmonton or just what it is you have in mind, but in any

"case I do not see that the Northwestern Utilities has any present need for a storage field unless it be that Leduc oil well gas comes forth in a stream in the summer time greater than they can handle in their utility operation and require a place to put it, in which case I think Kinsella should be used for that purpose."

You heard Mr. Davis give that evidence?

A Yes.

MR. C.E. SMITH: "Could be used."

MR. NOLAN: Yes, "could be used".

MR. C.E. SMITH: You said, "should be used".

MR. NOLAN: "In which case I think Kinsella could be used for that purpose." I am merely reading that to show what was in Mr. Davis's mind as to the possible connection between the Leduc Field and the Kinsella Field about which there was some discussion this morning. I have nothing more to add.

CROSS-EXAMINATION BY MR. FENERTY:

Q If the Board pleases, when I made my statement a while ago I did not know we were going to discuss the Grid system, Inter-Field. There are a couple of questions I would like to ask Mr. Dixon referring to this report of the Alberta Inter-Field Grid System, page 11, that Mr. Mahaffy was examining you on at length.

MR. NOLAN: That is the Stone & Webster?

Q MR. FENERTY: The beginning of the sentence at the bottom of page 10:

"Its limits are known - - "

referring to that field - -

" - - and it will unquestionably play a major role in the future peak load requirements of Alberta."

I am going to ask you to make an assumption I know you won't like to make. For the purpose of my question, will you make the assumption that you were completely wrong and Mr. Mahaffy was completely right with reference to what was going to be done and what areas gas was going to come from, and I want to discuss that with you for a moment. Assuming the Leduc Field is out of the picture, I want you to assume for the moment that the peak load referred to here is the peak load of the Edmonton system, I think it refers to both systems, by which the peak load in the Edmonton system, and the gas comes from the south, from the areas tributary to Calgary such as Pincher Creek and Jumping Pound, and I think it is clear from the whole report that is the place where it is supposed to be coming from, the result seems to me that you have the areas tributary to Calgary supplying the peak load of the Edmonton system while maintaining the Edmonton reserves intact because you put in 64 million and you take out 64 million. Is that the necessary consequence?

A I think you state it correctly.

Q And the result of maintaining the Edmonton reserves intact, except for their average load, to use the gas from the south for peak loads, isn't that as you deplete those areas from which the Edmonton peak load is taken, those southern areas that draw on those areas for their consumption will

necessarily be getting residue, high priced gas, from those areas much earlier than they otherwise would?

A Somewhat earlier. It might be a very small amount.

Q It will be a higher price as the wells go out, yes. And the result, if you follow that logically, the consumers in the south will necessarily pay more for their gas from those areas because they have been supplying the Edmonton peak load through this grid system. Isn't that just as logical a process?

A Correct, if there weren't some other things to consider along with it. Suppose we were supplying gas from Pincher Creek to put into a storage gas field in Kinsella, just let us assume that?

Q Yes?

A And you have all the facilities constructed to do that, now, the incremental amount that you would be taking from that system would not cost as much as building a line from Edmonton to Pincher Creek. You would be depleting the reserves of Pincher Creek faster but that would not necessarily mean that you were immediately increasing the present cost of gas, it might be decreasing it.

Q But you are increasing the cost sooner than you otherwise would if you used that lower priced gas for the peak load?

A No, I would not say that quite. The fact that the system would be built for a large capacity makes it that you were getting gas from Jumping Pound - - I can see where it would work out that Calgary would not be getting, for the time being, anything but some benefits. Of course, that would be depleting Jumping Pound considerably but there

are so many different things come in, and we are making the supposition all the time here that nothing is going to happen in the line of new fields and all that type of supposition.

Q You are worrying that I might apply this logic to your Grid system. I was not thinking of you at the moment at all. You think that over, now, on this Alberta Inter-Grid and see if it is not absolutely just arithmetic. And one more question. Assuming now that you are going - - if this means it is going to supply the peak load for both the Northern and the Southern systems, which I think perhaps it means - -

A You mean that Jumping Pound - -

Q The Grid system?

A Yes?

Q Alberta Inter-Field Grid system, when they were referring to playing a major role in the peak load requirements of Alberta, they were referring to both peaks. Then, as I understand it, you are going to have the pleasant little picture of piping gas, we will say, from Jumping Pound up past Calgary in the summer to Edmonton or north to Edmonton and then branching off to Kinsella, then back again in the winter time and bring the peak. You will have 300 miles, 350 or 400 miles, going up and 250 miles coming back to Calgary for our peak load gas. I do not know how many compressions that is, perhaps 4 or 6, something like that, for gas which is going to go past our door on the way up. Does that make it pretty expensive gas?

A It would be very expensive.

Q Thank you, Mr. Dixon.

CROSS-EXAMINATION BY MR. STEER:

Q I wonder if I might ask one question. Mr. Dixon, are you aware that the Northwest system has a line now from Leduc to Edmonton?

A Well, yes, I am aware of that.

Q And that such gas as is delivered by Imperial to Northwestern is presently in use in Edmonton?

A I understand it is being used on the boilers, like.

Q And the only way in which that could be done, of course, would be by correspondingly closing in the Viking-Kinsella wells?

A Well, I believe they take on a new load, steam load, there.

Q Of course, but to the extent that Leduc gas comes into the Edmonton system in the 20-mile pipe line roughly, Viking-Kinsella wells are closed in? Would you agree with that?

A That is certainly true.

Q And are you aware of the fact that at very slight expense any further surplus could be taken by the Northwestern Utilities Company and repressured in the Viking-Kinsella Field today? Are you aware of that?

A Well, you mean back by the present lines, not building another line?

Q Yes, through the present lines that the Northwestern Utilities could take delivery of and repressure in the Viking-Kinsella Field any surplus gas from Leduc?

A Well, you have to get it to Viking-Kinsella.

Q Well, Northwestern Utilities already has a line.

A I say you would have to get it there. You would have to compress the gas, not to a great pressure but to some

pressure, to get it through the line to Kinsella, then you would have to repressure it there and put it underground, or you could possibly, it would be a simpler and better operation to have the high pressure to start with and put it right in the ground.

Q My suggestion to you is that your suggestion about 100 miles of 22-inch pipe taking care of surplus gas from Leduc is quite fantastic?

A It was not my suggestion, I took it to be the suggestion of Stone & Webster.

Q Oh, I see.

EXAMINATION BY MR. C.E. SMITH:

Q If they are all through, I have two or three questions, sir. Probably the most of them have already been answered, but, Mr. Dixon, you will remember that your counsel put in the Hume 1950 report yesterday as an exhibit. I take it that you, representing the applicant, invite the Board to look at the whole report and not just some pages with respect to reserves? I mean, the whole text?

A The whole text, everything in the report.

Q So there will be no question about that?

(Go to page 537)

Q Then referring to Page 2 of Exhibit J-13, and the top paragraph, the first paragraph at the top of the page, where you refer to two assumptions in your last sentence?

A Yes.

Q "These assumptions are: that the Alberta Government will exercise its full authority, if necessary, to see that the needs of Alberta are first met and then that gas is made available for export in the quantities shown." Would you explain what you mean by "the quantities shown"? I am not clear on that.

A Well, we would have a problem here to work out, had a problem, and the problem was to show whether or not, or what we had to supply Alberta's needs for thirty years from presently known fields and the export for 20 years.

Q Yes?

A Well, we, in doing this, we have to be taking gas from various fields in various amounts, so that the quantities shown are the quantities that we have shown in the, in our exhibit where we have the amount of gas coming from these fields each year.

Q That is what I was getting at. I was not sure whether it was shown in your exhibit or shown as proven to the Board, and suggested that they might find proven and available for export. You are referring to your own exhibit?

A Yes, I am referring to my own exhibit entirely, of course.

Q Carrying on to the next paragraph, you say, "A necessary corollary to this is that the gas fields so geographically situated as to make it economically feasible to

interconnect them into one general source of supply will eventually be interconnected." Now, I do not want to go into any more detail about grid system, but I take it in your opinion that to do what you have suggested to protect the Province and make gas available for export, to do that, in your opinion some form of a general grid system will have to be instituted in Province?

A That is certainly my idea.

Q Whosesoever system is given a permit?

A Yes.

Q You think there must be or will be a grid system?

A Yes, there will be a grid system.

Q Carrying on that same paragraph, "Another necessary corollary is that all present or future contractual relations will be subordinated to the purposes to be served." The purposes being protection of the Province and export, if available, is that correct?

A That is correct.

Q When you say "subordinated", does that include, or primarily include such things as statutory breach or frustration of contracts, is that what you have in mind?

A No, what I had in mind was the fact that in any field - for instance, we have a contract for some gas in Princess.

Q Yes?

A If we lost or were not allowed export, that contract should certinnly be subordinated to the person that was exporting.

Q When you say "subordinated", I do not quite follow you?

A I mean, it might be, you might say, annulled, and that

the amounts of the gas that we have shown cannot be held back by the present owners or the whole affair will fall down.

Q You mean there should be some statutory enactment or some competent regulation to cover that?

A I do not think there is any need of any statutory enactment from what I have been informed, but there might be some such regulation made with respect to that.

Q Well, you are not likely to accomplish what you have in mind by several of these gentlemen getting together over a pot of tea and agreeing to this?

A I do not quite understand you.

Q Let me hit the nail on the head, supposing McColl-Union, they have a contract right now with the Montana Power Company to supply gas from Pendant d'Oreille and various other fields to them, with respect to that you think that there should be some statutory - I don't know of any other way - enactment whereby that contract could be frustrated or breached in order to protect the Province of Alberta generally with regard to its gas supply?

A They would not need to do that. All they would need to do is deny export in that special case.

Q Well, of course, that can apply to all of you gentlemen, and it is a question of who may and who may not, is that what you mean?

A Yes.

Q But do you think it should extend that far with respect to the question of contract, that is all I want to know?

A Well, my understanding was that the Province had complete authority over all contracts. I have been informed by

the highest of authorities that they could contract, but to have it effective we must have it provided for.

Q I think probably you are right. I am not quite sure that we can hold it up if somebody ever gets after us, that is all. However, at the bottom of Page 2, you say this, the fourth last line, "The gas for export will be derived chiefly from fields not now connected with any large market." I take it, that having regard to your statement at the bottom of Page 4 that you are not eliminating Leduc and Jumping Pound as a source of export after Provincial protection?

A No.

Q I mean, I do not want any misunderstanding?

A No.

Q They are now connected, or in the course of being connected?

A I think, yes. I say chiefly. I did not say entirely.

Q And you expect that Leduc in any event, that probably there would be quite a large amount available for export there?

A Yes, eventually.

Q Subject to Mr. Steer's contract with Imperial?

A Yes, as long as they could use the gas for Edmonton.

Q In any event, those two fields are not eliminated by that statement?

A No, sir.

Q At the top of Page 3 you say this, " The assumptiom that only the presently defined reserves will be available for Provincial and export use is an assumption which is,in our opinion,supported by unanimous testimony,

contrary to the fact." Would you agree that to be a proper assumption with regard to the Provincial protection, Mr. Dixon, you combined them both?

A Well, if ever in use the presently defined reserves will be available. We are not saying in quantities, but they certainly will be, more reserves will be available than we have discussed here.

Q What I am getting at is this, would you agree with this that the presently defined reserves should be available for Provincial use, that simplifies it?

A Of course they should be available for Provincial use, but also for export.

Q If there is enough?

A Yes.

Q But there is nothing wrong with the assumption that we confine it to Provincial use, that the presently defined reserves be made available for Provincial use without the export use?

A I would not say. I would not go that far.

Q You would not even go that far?

A I mean the assumption that only the presently defined reserves will be available for Provincial use, that certainly is hard to believe that only the presently defined reserves, and that a new field could not be used for Provincial use. That is what that would mean.

Q It would be much safer in view of the protection this Board has to give under the Act to Provincial use, it would be much safer if they could say that there are presently defined reserves at least to protect this Province for some period of years?

A Yes.

Q Now, at the bottom of Page 3 you say, "We are not presenting our study of Pincher Creek; we are informed that the Canadian Gulf Oil Company will present a study of that field." Have you the same information with regard to Shell and Jumping Pound, Mr.Dixon?

A The Shell are in the process of testing, and no one knows what its tests are going to be.

Q But have you information that they will present a study to this Board before the close of this joint Hearing?

A I do not have information that they will present a study to this Board because they are in the process of testing now.

Q Is that your opinion or have you information?

A We have information to that effect, that they are testing the wells and also that they have agreed that the Board engineers will go out and watch the tests.

Q All I am getting at is, have you information that they will appear or will not appear at this present Hearing?

A I have no information.

Q Then at the top of Page 4, the last sentence of the paragraph at the top of the page, "We are not presenting any study of the Redwater, Golden Spike or Acheson fields, nor have we considered them in our estimates of available gas." I take it that is because, take Redwater, because of what Dr. Hume has said and read into the record that the low gas/oil ratio of 180 now in it is so low that you do not expect to get any production?

A It is problematical.

Q It is so problematical you did not study it?

A No, although the Imperial seemed to think they will get some production from there.

Q You are more or less in agreement with what Dr. Hume said?

A Yes.

Q And you remember hearing read the statement with regard to it, what he said?

A Yes. I think Hume is right.

Q That is the only reason that you have that statement here?

A Yes, and my own judgment.

Q I think you probably dealt to some extent with Mr. Nolan this morning with regard to what I was going to ask you regarding your schedule following Page 8. You will remember probably, Mr.Dixon, the discussion I had with Mr. Mackenzie Friday in connection with this Table, and, amongst other things, he both orally and in his submission gave us some information about the present plan of Imperial at Leduc, and I suggested to him taking 1957 only as an example, I asked him how he could plan on handling 80 million a day, as suggested in your plan, and he said, I think, only by, I don't think by expansion, but probably a rebuilding of their present plant to accomplish that. Do you remember that?

A Yes. I think I have some knowledge of those matters and they would have to build a new plant. It would be cheaper.

Q And I think this morning you told us that your company would be willing, either alone or in conjunction with others, to build such a plant to handle the daily output that you suggest here?

A Yes.

Q You heard Dr. Govier ask Mr. Mackenzie with respect to the present plan and what they really could accomplish if they went to work on it, aside from the amount that it was designed for?

A Yes.

Q Can you remember that?

A Yes.

Q Can you give us a little help along those lines from your experience?

A Well, any plant for treating gas for gasoline content, purification, can be run at a much higher rate than they are scheduled for for a considerable period of time, but you must have some spare capacity I should think, as he said, that you could run it over the capacity, 20 or 30% of the supposed design, and it can be run fairly regularly at that,but when you get it up to 50% over the regular design, then you keep running into trouble.

Q For your assistance, Mr. Mackenzie informed us that it would be somewheres in the vicinity of 20 or 30% of its capacity?

A And that would be only for peak requirements.

Q Only for a short time?

A Yes.

Q So that it would mean to get the daily production that you suggest here, it would undoubtedly mean the building of a much higher capacity plant?

A I think it would,yes.

Q Have you any idea of the cost, by the way, while I am

at it? You may have some idea, of course?

A It is awful hard for me to give it from memory. I have considerable data on the cost.

Q The reason I asked that, Mr. Dixon, was that Mr. Mackenzie suggested they were running the plant at a loss, losing money on it now, and they do not want to increase their loss by increasing the capacity of the plant?

A The smaller the plant the harder it is to make money.

Q I suggest that they can sell gas to you at a better price than to Mr. Steer's client, it might help them with respect to their loss?

A Yes, certainly.

Q Do you remember what the price is?

A 4 cents.

Q 4 cents?

A Yes, but it would be altered at the end of the year according to the formula.

Q I take it in your plan as suggested in this Table, Mr.Dixon, that with regard to your gas, your daily gas production, it of necessity depends to a great extent on the oil production There is no doubt about that?

A For the first 10 years I would say it was entirely on the oil production.

Q Why do you limit it for 10 years, by the way?

A Well, because you would begin getting large amounts from the gas cap, from practically gas wells.

Q You think your oil production would go on beyond 10 years or don't you?

A Well, it depends how fast you take it out.

Q Well, I suppose we are back where we were Friday, You

heard Mr. Mackenzie say that their plan of withdrawal, because of their oil withdrawal, their withdrawal because of their oil, I mean, is considerably slower than yours?

A It is half of the speed.

Q And what is yours based on?

A On the present allowable of the Board.

Q Yes?

A The present allowable of the D-3 is, I believe, 12,000 barrels a day, pardon me, the D-2 is 12,000 barrels a day, and the D-3 is about 30,000 barrels per day. Now, we have taken 10 and 30.

Q And you carry that proportion all the way through in your Table?

A We carried it through until we have produced about 75% of the oil, and then the well will be considered, the wells will not be considered capable of making that amount, and we slide it off.

Q And you are assuming a consideration of those allowables throughout the period, is that so?

A Yes, that is the regular method that we have used, knowing no way of looking into the future, just taken the present rate, and assumed it is going to be the same.

Q With respect to Page 8, I forgot to mention this, in the second paragraph of Page 8, you say, " This 40,000 barrel estimate of future production per day of Leduc is based on an estimated total production of Alberta, from present fields, of 160,000 barrels per day." Where does that figure come from?

A That is largely from the figures of Mr. Stewart.

Q Of which?

A The President of the Imperial Oil. He gave an estimate of the amount that would come from Alberta in a speech.

Q That is some estimate in a paper we read the other day, or what?

A Yes, a speech he made before the Canadian Club.

Q I mean, there is nothing in any exhibit, there is nothing before the Board, nothing in any exhibit presently before the Board?

A No, that is a pure estimate. The Board can probably check that with far greater accuracy than I can. We looked at the amount of the lines and the present existing refineries, and it is somewhat above that that might come out when they have put some additional pumps on the line going to Superior.

Q In any event, that is where that information comes from, that is, from Mr.Stewart?

A Yes, in discussing the matter with some people over in the Board.

Q And now, with respect to your gas/oil ratio in this Table that we have just been referring to, Mr. Dixon, you heard the discussion I had with Mr. Mackenzie Friday, and if I understood him correctly, he said that he thought it might not rise as greatly as you suggested in your Table. If I understood him, he indicated that it was primarily because of slower withdrawal. Was I correct in that interpretation?

A That it wouldn't rise say possibly for a year on account....

Q That is what I mean?

A Of course, the speed of the rise in the gas/oil ratio is not a function of time,but a function of the speed

of withdrawing the oil.

Q In other words, did you understand that he disagreed, or, more or less, agreed with your idea of increase in the gas/oil ratio?

A He agreed, but he did not go into it in any quantitative way.

Q I think he left it for Dr. Pot, if I remember correctly, to deal with.

A I suppose so.

Q Primarily?

A Yes.

Q Turning to the other Table at Page, it is in front of Page 10?

A Yes.

Q I wonder - probably you explained it when you were talking to Mr. Nolan and Dr. Govier - when you used the words "D-3 gas cap and Lower Cretaceous", you added that to your middle column, and this morning you say that adding that there you make it probably more understandable?

A Yes, that is what it meant that that gas is partly taken from the Lower Cretaceous and that will help to smooth out the amount.

Q To some extent Do you start taking gas directly from the gas cap in 1960?

A I think there is no such thing as taking gas directly from the gas cap. You would be taking some directly from the gas cap almost immediately in small amounts, and that will slighly increase.

Q Do you mean finding its way out as part of the oil?

A It comes up directly with the oil.

Q Does that mean that there is no direct contact with the gas cap as such? Do you mean it will come with the D-3 solution gas? In the D-3 gas cap and the Lower Cretaceous, starting in 1960, you have 9.2 million, and so on?

A That is the amount that we figure can come out over and above the amount that would be coming out of solution gas. You could probably get a great deal more, but that can be held back with no hardship, on account of the great many of the wells being practically gas wells as of that time.

Q Taking 1968, 104 million, you are getting 104 million out of what we call the D-3 gas cap and Lower Cretaceous?

A Yes.

How is it got out from the gas cap?

A It will come out of the same wells in the study which have ceased to be oil wells, and have become gas wells.

Q And those wells, I don't know what you would do with them, but those wells would be used as producing wells for the gas cap, is that what you have in mind?

A Yes, those wells would be used as producing gas wells for the gas cap.

Q Because they have ceased to be oil wells?

A Yes, because they have ceased to be oil wells, and you would be getting gas instead of oil from them.

Q And at Page 21, I hate to get into this portion of this submission in view of what has occurred this morning, but just one reference to it, the first complete paragraph on Page 21, starting with "Let us analyze"?

A Yes?

Q "Let us analyze this plan of the Inter-Field Company. The gas reserves and possible deliverability of Viking-Kinsella are sufficient to supply all the needs of Edmonton, including peak day loads, for a period of at least twenty years."

A Yes.

Q Have you got that point?

A Yes.

Q I was wondering - well, there is a further explanation, "This gas now is being, and undoubtedly will continue to be, supplemented by some gas from Leduc, thus lengthening still further the life of Viking-Kinsella." Having regard to the first sentence I read, is it your opinion that the gas reserves and possible deliverability of Viking-Kinsella, are sufficient to supply all the needs of Edmonton, including peak day loads, for a period of at least twenty years?

A I think they are, yes.

Q That is your considered opinion?

A Yes.

Q So that your statement can be taken in that way?

A Yes.

Q I do not know whether I have anything else turned down here, Mr. Dixon. I think that is all I have, thanks, Mr.Dixon.

Q DR. GOVIER: Mr. Dixon, on Page 6 of J-13, you make reference to a theoretical curve, which you then supply following Page 6, and discuss a little further on Page 7?

A Yes?

Q I wonder if you would give us the source or the origin of this curve?

A There were quite a few theoretical articles written on it, but this direct curve is taken from the Phillips Petroleum Company, with whom I did a great deal of work on this type of estimation.

Q Do you know of any publicly available reference that would contain this curve?

A There are curves somewhat like it, but I cannot think of the name of the author, but I can get that for you. I cannot do it right now.

Q We would like to have the reference source, if you can get it?

A I will have to get back to New York to look it up, but I will be glad to send it to you.

Q On Page 7 you indicate that two of the assumptions in this curve are, (1), no water drive, and (2), no gas cap. Can you tell me whether there are any other assumptions inherent in the use of this curve? I am thinking particularly about crude oil viscosity, or other properties of crude oil, or properties of the reservoir rock?

A The viscosity is one. I have not the mentality nor the knowledge to do the theoretical calculations on that which this curve is supposed to be corrected for the viscosity or oil of about the characteristics of East Texas crude.

Q That was really what I was getting at. Just what kind of oil is this curve drawn on? That is what I was getting

at, just what kind of oil is this curve drawn on? That is what I was getting at, what kind of oil this curve was drawn on?

A It was for a medium Mid-Continent Oil.

Q You might say this, that another assumption is that the curve assumed that you have a crude generally comparable to medium Mid-Continent oil, is that fair enough?

A Yes. If you have a fairly heavy oil, it is very difficult to work any curve on it at all.

Q Would a medium Mid-Continent oil be lighter or heavier than the Leduc D-3 oil, do you remember?

A What is the gravity of that?

Q I believe it is around 39?

A Yes.

Q That would be just about the gravity.

A A little bit higher than the average Mid-Continent oil.

Q The Mid-Continent oil might be a little less than 39?

A Yes, I would say 35 would be nearer correct, but no great difference.

Q Would it follow that the Mid-Continent oil would be a little more viscous, particularly at reservoir conditions than the Leduc oil?

A It might be, yes.

Q Do you think that would alter the theoretical curve at all?

A It might alter the theoretical curve, but I do not think that the degree of accuracy that we can work on will be affected. Of course, you uunderstand, that this is a method of approach, and the only method of approach, that I know of on this problem.

Q The reason we are very interested in this, Mr. Dixon, is that this is the first evidence we have had that the gas/oil ratio might decrease substantially in the D-3 reservoir, and we certainly appreciate the fact that you have had a good deal of experience in this, and we want the benefit of all your views on it. Now, so much for the theoretical types or theoretical aspects of the curve. We have been just talking about theory so far, haven't we?

A Yes.

Q Am I right in this, that you applied this theoretical curve to the D-3 reservoir because, as you say, on Page 7, the gas cap and the water drive are not likely to be affected in the D-3 reservoir, is that your reason?

A That is the reason, yes. There is all sorts of reasoning with regard to it there, and I think it will not be affected, or I think it will be less than.....

Q It has a negative effect?

A Yes, it has a negative effect, because it will break in. There are two things, the well where the gas is above it and pressing down, assuming that it is porous enough for it to be affected, that well would in that case, that would hold down the oil/gas ratio.

Q Yes?

A But as soon as there would be a streak of porous strata, or the oil would reach perforation and let the gas in, then it will shoot away up, and the well can change in a few days from a well with a very low gas/oil ratio to one of almost pure gas.

Q You tell us that the D-3 reservoir will behave like a

solution gas reservoir, except the gas/oil ratio may increase more rapidly because of the break-through of the gas cap?

A The average will increase.

Q The average will increase?

A Yes, because some of them will be exceedingly high.

Q Mr. Dixon, do you arrive at that conclusion on the basis of a fairly detailed study of the characteristics of the D-3 reservoir?

A I read all that I could on it, and it seems to resemble very closely the types of formations that we find in Texas of the porous limestone, irregularly porous, with parts of it low permeability and parts of it with high and some cracks.

Q Were you able to compare it with any reservoir in Texas which had a gas cap and bottom water?

A This is not in Texas, it is the Eunice field, which is the first big field I ever worked on, and that had all three characteristics here with gas above it, a gas cap and a water drive, a strong water drive.

Q MR. NOLAN: What State is that field in, Mr. Dixon?

A That is in Lea County, New Mexico, that is right near Texas. There is a whole series of fields, Eunice, South Eunice ...

Q DR. GOVIER: Are they limestone fields?

A Yes, they are limestone fields.

Q Were they operated under conservation principles?

A They were not at the start.

Q They were or were not?

A They were not at the start.

Q When did they start operating? Take the Eunice field for example?

A I am speaking from memory but that really got going as a field in about 1936, something along that line.

Q That would have been about the time the conservation principles were just being established, I suppose?

A I think New Mexico was a little slow.

Q Has the field produced more or less wide open?

A That never has been produced wide open. They shut them down. That is to say, if a well was producing too much gas they shut it in. It happened to be that was fairly close to the El Paso line and then they put up some huge carbon black plants and took a great deal of it at a very low price. They were paying about 2 cents for the gas. They did take care of their surplus gas production and they did their best not to take any of the top gas. But there were some wells there that changed over night from pretty good oil wells, with a fair medium gas/oil ratio, to sometimes a pure gas well.

Q Have you had an opportunity to compare the average oil/gas ratio performances with the field with the curve that you have offered to us?

A I have not in the last few years. I did for a while and it was very difficult. We did not have good records on a part of it. It was a divided ownership. The

carbon black people would take some of the gas. Phillips were taking some and sending it out through their lines. It is difficult to consider from the first few years. And then new fields were being brought in all the time and that was one of the difficulties; none of them kept good records.

Q Would you think, considering a field with the characteristics of the D3 field and other fields you know about which exhibit similar characteristics, in arriving at your conclusion that this curve will likely be correct?

A It will likely approximate - now, I do not claim - -

Q I understand that you told us that it is the best approximation you could arrive at?

A Yes.

Q The thing that disturbs me is your basic reason for assuming that solution gas reserve in the D3 reservoir was being produced by the water drive, and the gas cap part will not be affected. On the other hand, we have had evidence presented before us under the Petroleum and Natural Gas Conservation Act in connection with oil matters to the effect that in educ the D3 reservoir is so far performing in such a way as to indicate that both the gas-cap and the bottom water are being most effective in aiding the discharge of oil?

A If that were true it is certainly extraordinary. We have examined the particulars which I mentioned, that the gas/oil ratio has been rising and rising fairly rapidly.

Q That is a thing I wanted to ask you about. Do you have a gas/oil ratio curve there?

A No, it was just some figures that we got from the records of the Conservation Board, showing the total amount of gas taken during the years and the total amount of oil. How accurate these statistics are I do not know, but assuming they are correct the gas/oil ratio is constantly rising. All we have to show is the amount which is taken each year, the amount of oil produced one year and the amount of gas produced that year. With the exception in this case of the Atlantic well, which was a terrific well, which was blown wild, and that has broken up the continuity of the flows of the oil and gas in the field to a dead certainty, so we cannot accept them as good results as if they never had a wild well.

Q At the time you made reference to this before, I recall looking at the gas/oil ratio chart that I happened to have with me at the time. Unfortunately, I forgot it this morning. There is no doubt that the gas/oil ratio has increased during the life of the D3 reservoir.
I wondered if you had taken into account in considering that life that the gas/oil ratio figures, as reported on that chart, have not been reduced to any constant separator pressure and that a change in separator conditions in the field might influence your figures?

A I think they would. I have no information on that.

Q I believe Mr. Dixon it would be right to say that during the last three years the separator pressure in the Leduc D3 reservoir has decreased quite a bit, and I wondered if you had considered that in considering the rise in the apparent gas/oil ratio?

A Well don't you think that the separator pressure to take the oil out will have always been decreasing unless you want to shut the production of the field in.

Q That may be, at least until it has reached the point where you cannot go any lower. It is already very near that point, as a matter of fact. My concern was that that increase in the gas/oil ratio indicated that the water drive might not be effective and also that the gas-cap drive might not be effective. But is it not possible that that increase in the gas/oil ratio is merely a reflection of the field lowering in separator pressure, plus more reliable metering after the second or third year of the life of the field?

A That of course I have no method of checking. It could be. I think a record kept by a well to well type of record is what is needed in this field.

Q That type of record is available, Mr. Dixon?

A The accuracy of the process in reporting the amount of gas that is produced, unless it is actually metered, is something that is very difficult to check on.

Q Perhaps when Mr. Pot of the Imperial Oil is on the stand he might help us both on that?

A Yes.

Q Did you look at the reservoir pressure decline curve when arriving at your conclusion that the D3 field was going to behave as a solution gas field? Do you think the decline curve would support that?

A I do not know. I have not seen that.

Q The pressure decline curve of the D3 - -

A No, I have not seen that.

Q You have not studied that?

A No.

Q Mr. Dixon, your experience in other limestone reservoirs and in your comparison with their performance with the theoretical curve,, were there any cases where (a) the reservoir had a gas cap, or (b) the reservoir had a water drive and at the same time these reservoirs were produced under conservation principles of the type that generally speaking are employed here? What I am looking for is actual comparisons that I can find.

A The Goldsmith field, part of the Goldsmith field. That is a large field and really divided into several pieces. It had large ownership, that is, in large blocks. I think they applied conservation rules there even though that was not enforced by the Government, and they did there for a time hold back to see if - they thought they had a water drive and a gas cap too and they tried to hold it at a constant ratio. For a little while it looked like it was working but now they have more gas than they know what to do with.

Q The theory broke down?

A Yes. Now you always get a lot more gas than you calculate on. It seems to act very funnily. The old Yeats pool, that was drilled a generation ago, and they still have a plant running on gas coming from there and why that has not all gone I cannot understand, because there was no thought of conservation at the time that was brought in and that is a pool on the order of the limestone formation such as

this. That was the first of those in West Texas.

Q I have had the feeling that no matter what was done in the way of restricting production rates to those that would be allocated by good conservation principles in the way of closing in or restricting the flow of high gas/oil ratio wells, and in the way of restricting the flow of wells developing a high water/oil ratio, that this vast increase in the gas/oil ratio is inevitable and we can look forward to something which is an approximation at any rate, as indicated by your theoretical curves. Is that about it?

A Maybe I do not understand you. I do think that if you restrict the high gas/oil ratio wells by shutting them in and do not let them produce anything, and do the same with the high water well, then you have a good chance for extending greatly the rise in that gas/oil ratio. But that is a process that is only defeating yourself, where you are shutting off production.

Q Probably with a greater ultimate minimum recovery of oil?

A I do not know that that follows, whether you would get more oil that way or the other way. The two are not directly related.

Q Will you make an assumption, Mr. Dixon? Let us assume that high gas/oil ratio wells and high water/oil ratio wells, as they developed in the Leduc D3 pool, would be perhaps not completely shut in but at least have their production materially curtailed, more or less to the point where each well was producing the same amount of reservoir fluid. Suppose we assume that. Would that put your projection of the gas/oil ratio trend in the pool?

A It would hold up a great deal better but it is hard to do that under these conditions.

Q Under these conditions it might not be as stable, is that what you mean?

A Yes. You would get more oil out without the gas and the gas cap would be there and there would be a smaller amount of gas would come out with the oil. But to do that you would have to shut down a good part of the field, judging by experience elsewhere.

Q You have indicated a rise in the gas/oil ratio of, let me see, I think it is 4 or 5 to 1 increase between the beginning and the maximum?

A Yes, sir. Now, there is one thing, unless the amount of oil going through it - - -

(Go to page 562.)

Q Oh, I appreciate that. That is a completely different side of this problem.

A I know it is. It is one you are making assumptions on. This is very difficult to prove.

Q Let us not worry about that right now, we have enough on our hands. Your present curve indicates, well, let us say a 5 to 1 increase in the gas-oil ratio between the beginning of the life of the pool, and say the time when 75% of the ultimate oil is produced, is that right?

A Yes.

Q Well, just say it is 5 to 1?

A Yes.

Q Now, under the assumptions I asked you to make with respect to shutting in high gas-oil ratio wells and high water-oil ratio wells, would you care just to guess or estimate or guesstimate what that increased ratio might be instead of being 5 to 1? You think it would be lower, you have already said that. Would you care to guess what it might be?

A You mean that as a field at 5 to 1 is where there is perfect control?

Q Well, let us find your curve for the D-3. That is on the third page following page 8. You start out about 675, I believe, the maximum is, say, 2600, so we want to divide 2600 by 675. If we do that we will get about what?

A 4 to 1.

Q Was it 4 you said?

A Let us say we are dividing - - oh, by the way, on the left

hand side there are two zeros too many on all of those figures. It is an error in reproduction.

Q MR. NOLAN: Are you looking at the same diagram?

A This is D-3.

DR. GOVIER: I guess we have got different charts.

Q MR. NOLAN: This is the one the Doctor is speaking of.

A Oh, pardon me.

Q DR. GOVIER: Is that the right one, Mr. Dixon, the estimated gas-oil ratio for Leduc D-3 field?

A Yes.

Q MR. C.E. SMITH: Right in front of page 9, aren't you?

A Yes.

Q DR. GOVIER: And that shows an increase of, say, 675 to 2600. I have just divided that out and I get 3.85. Let us call it 4 just to make it easy?

A Yes.

Q We have 4 to 1 increase on gas-oil ratio. Now, suppose we shut in the high gas-oil wells and the high water-oil ratio wells, perhaps not completely but to some reasonable point as they develop in the pool, what in your opinion would be the ratio between the maximum and the present day gas-oil ratio under those assumed conditions of operation?

A Take the first part of shutting in the gas. We are assuming in this curve that there is no gas coming from

the gas cap.

Q Except that which might channel through?

A No, none in this curve.

Q Oh, I see what you mean, because this is the true solution gas curve?

A This is the solution gas curve. Now, it is wrong if there is any effective water drive. Now, that is something I have heard conflicting stories on and I do not know much about in this field. It is a really effective water drive in the limestone formation unless it is wide open like the Mexican type of formation,and is something that is extremely rare.

Q In that connection, Mr. Dixon, did you ever see a lifting of all the material that was dumped down the Atlantic No.3 hole?

A Yes.

Q Would not you say that was indicative as to the openness of the formation?

A It certainly is, but there are a great deal of irregularities. That is the characteristic of a limestone, we will have a great deal of irregularities. Whether it can effectively follow - - it will come in in long stringers in some places and slow up in others. Now, it may be that this is porous enough so that you have a fairly effective water drive, I do not know.

Q Suppose we did have an effective water drive, would your curve then reduce to a horizontal line?

A Theoretically.

Q Theoretically. Well, let us make it nearly horizontal,

call it a theoretical line. Now, that would be with a completely effective water drive?

A Yes, let us assume a completely effective water drive.

Q And that would also be assuming that no gas be produced in the gas cap?

A Yes. Well, if we make the assumption then that the oil would be produced at the same rate that I have estimated here, it would shorten the life of the field because it would be more effective, it would not slide off and around 1962 or 1963 or some time there it would be a perfect gas field.

Q Do you believe that all the oil could be produced in 12 to 13 years?

A It depends on the rate you produce it. If your condition is correct, assuming there is a water drive, you are assuming a wide-open formation, you have to produce it in very few years under those presumptions. I do not say it is desirable but it could be produced. It is the very fact that you would have to produce it slowly would mean there is not an effective water drive because the water was not pushing it up and that means it was not permeable.

Q Isn't it true, Mr. Dixon, that regardless of the effectiveness of the water drive it is necessary to restrict the producing rate of the pool to the point where the water can keep up with it?

A Well, you would never produce - -

Q Or let me say it in another way. That is not very clear. In order to make any water drive effective, isn't it

necessary to restrict the production from the pool?

A No, not necessarily.

Q You would not say so?

A No. Take the prime example of the world, the wells in Mexico where they pull the oil through at tens of thousands a day per well and the water drive is perfect, so you may shut them off in a matter of almost days. Now, you have every gradation from that to where a natural production of water will follow right along, the effective water drive I expect, if it is really effective.

Q Now, getting back to this original question where we are assuming certain contributing conditions, showing high gas-oil and water-oil ratio wells, referring to your curve, the one before page 9, would you agree to hazard a guess as to how that curve might alter under the conditions I have assumed?

A Well, you are just assuming a water drive.

Q We are assuming a water drive and we are recognizing the fact that we have a gas cap and we were going to shut in or curtail production of all wells that began to produce at an excessive gas-oil ratio, we are going to do that on some reasonable basis.

A I should say that if that was done and done effectively, which is something I have yet to see, that no regulatory order - -

Q It is contrary to your experience?

A Yes. I think you could reduce that curve where the gas-oil ratio would only be about double.

Q Well, that was the figure I wanted.

A It is a theoretical amount.

Q In other words, instead of 4 to 5 it might be 2?

A 2 to 1.

Q Well, that is certainly helpful.

A But that is a sort of condition that is contrary to fact.

Q Yes, you do not believe that could be done, but if it could be done your answer at present is that the gas-oil ratio might double instead of going 4 times?

A Yes.

Q If it could be done?

A Yes.

Q MR. GOODALL: Even if the pressure is maintained in full?

A I am considering the pressure is maintained in full but you can not ever maintain the pressure absolutely, that is just contrary to any operation. There must be a lag between that unless you were taking it out in infinitesimal amounts.

Q DR. GOVIER: Another thing that disturbs me, Mr. Dixon, is a little bit involved but I think it is probably fair to say that it is only over the last ten or twelve years that operating oil companies and State and other Government agencies have become aware of the true principles underlying conservation. Do you agree with that, the last ten or fifteen years?

A Well, I do not know that they are yet. I should think they started to think about it.

Q They started about ten or fifteen years ago?

A Yes.

Q Let us look at that on the one hand and on the other hand

there seems to be a widespread opinion that in order to obtain a high recovery of oil from a water drive field the field should be produced over a period of, oh, say roughly 20 to 30 years. Would you agree with that?

A No, not necessarily.

Q You would not agree?

A Not necessarily. I mean, at the time the water drive field might be a very small field which you could produce in a very short time. The East Texas Field, which is a water drive field, now as a field that is being produced very very slowly with water pressure kept and the wells kept down to a very small amount and they are apparently trying their best to hold that field and partly with great success. They had very little gas in the field to start with, practically none, and they have held up the pressure. Now, the Hastings Field, near Houston, is a field - - that is a sand field. These are sand fields, which are very different. You have an even, porous,highly permeable strata where the water can come right along and it would be a matter of experiment with taking very large numbers of bottom-hole pressures. Now, like this Skerry County field that I handed you my report on, just at the time I was making that report the Railroad Commission made them run a bottom-hole pressure on every well in the field, which was about a thousand wells, and they shut the whole field in, would not let a barrel of oil get out while the bottom-hold pressures were being taken, so they hustled to have the bottom-hole pressures done. And they needed that for the basic data to start on, which is needed. If you have

not got the best data when you start, it is very hard to know what you are doing.

Q Well, Mr. Dixon, let us make another assumption. Let us assume it was just twelve and a half years ago exactly that the principles of conservation were established to the point where even a reasonably good job could be done of planning the exploitation of an oil field. Let us also assume - - I know you may not agree with this but let us assume that for a water drive field production should be delayed over about 25 years. Now, dividing 12½ into 25, or vice versa, dividing 12½ by 25, I think it would follow just by arithmetic that a water drive field operating under conservation principles could today only be half produced roughly, is that right?

A That is correct, yes.

Q And that is another thing that concerns me about the use of the solution gas theoretical curve for a water drive field because I fail to see how that can be backed up by experience beyond, say, the first part of the curve on the strength of this 2 to 1 argument. Now, I would like you to comment on that. Maybe my reasoning is not sound.

A I think your reasoning is correct on that. That is why I had cut it down to about half, on almost exactly that principle.

Q I just have one other question, Mr. Dixon, and I am sorry to have taken so long on this. In Exhibit J-17 which you have just given us entitled: "Skerry County Canyon reef fields", I understand there are five small pools, or five pools, I should not say "small".

A There are five pools there. Now, they are connected.

Q They are really considered to be one?

A They are really almost one pool.

Q Well, this is my question. Are those pools solution gas pools or gas cap pools, or how would you describe them?

A They are solution gas pools.

Q All of them?

A All of them.

Q So they bear no direct relationship to the Leduc D-3 pool?

A No.

Q Theycompare more with the D-2?

A They would be very much comparable to D-2 in every respect.

Q Thanks very much.

MR.NOLAN: May Mr. Dixon be excused now?

THE CHAIRMAN: I have one question I would like to ask Mr. Dixon.

Q My question is on your statement in the second paragraph, of Page 20, where you say "The plan is to compress the Leduc residue gas from a pressure near atmosphere to 750 p.s.i." Now, was that before or after the gas is processed? As I understand it, that gas is lowered into the line and it goes in at around 500 or 550 pounds?

A I was taking it at practically atmospheric. Someone has to pay for it to bring the pressure up.

Q Well, wouldn't the operator himself, or the plant have to pay?

A I thought it came in at a very low pressure.

Q Oh, my understanding is that the gas is supplied to the Gas Company at 500 or 525 pounds?

A I didn't know. I thought it was very much lower, at 20 or 25 pounds.

MR. STEER: My instructions are that it comes out at an ample pressure sufficient to carry it into Edmonton.

THE CHAIRMAN: Yes, that is right.

MR.NOLAN: I mentioned Friday, Mr.Chairman, that there were a couple of documents I wanted to put in.

THE CHAIRMAN: Yes.

MR.NOLAN: The first arises out of a discussion between myself and Mr. Herring with respect to the petition to intervene made by the Mountain Fuel Supply Company in the application before the Federal Power Commission of the Pacific Northwest Pipe Line Corporation. And I produce a certified copy of that petition.

MR. S. B. SMITH: May I see it before it is put in?

MR.NOLAN: Certainly And there was another point, sir, that arises in Volume 11, at Page 912, and it had to do with the transportation of gas in bond, and I have here an opinion written by Mr. Logan.

MR.S. B. SMITH: Which company does that deal with, Mr. Nolan?

MR.NOLAN: I beg your pardon?

MR.S. B. SMITH: I am sorry, I was looking at your other document.

MR.NOLAN: It deals with the general question of transportation of gas in bond into and out of the United States.

MR.S. B. SITH: I wonder if I could have a look at that and see what it is about before it is tendered?

MR. NOLAN: Well, we have been putting

these things in without handing copies of them around, but I have got copies, and I will be very glad to distribute them.

MR.S. B. SMITH: It is now almost ten minutes to one. I do not think it is very material whether it goes in today or tomorrow.

MR.NOLAN: But I want to bring the proceedings to a close as quickly as possible. That is my whole aim and object.

MR. S. B. SMITH: If you think it is going to speed up the Hearings any by putting it in at ten minutes to one instead of 9.30.....

THE CHAIRMAN: This does not deal with the Inter-Field Company?

MR.NOLAN: No, sir. The question arises, or rather, the question arose and the Board asked about it, and, as we are concerned with it, we wanted an opinion and this is it.

THE CHAIRMAN: That will be Exhibit No. J-18.

OPINION REGARDING TRANSPORTATION IN BOND, OF MR. ARTHUR G. LOGAN, MARKED EXHIBIT J-18.

THE CHAIRMAN: And the one that you previously filed and that Mr.Smith has now, will be Exhibit J-19.

PETITION OF MOUNTAIN FUEL SUPPLY COMPANY FOR LEAVE TO INTERVENE IN APPLICATION OF PACIFIC NORTHWEST MARKED EXHIBIT J-19.

MR.C. E. SMITH: The letter of Mr. Logan is Exhibit J-18, and the petition J-19?

THE CHAIRMAN: Yes.

MR. C. E. SMITH: I hope this does not create a precedent for all counsel to stick in opinions.

MR.S.B. SMITH: The door has been opened.

THE CHAIRMAN: Would it upset your arrangements, Mr. Martland, if we asked Mr. Pot to appear tomorrow or the next day? We think possibly, or we thought if it was all right, that possibly he might follow the evidence given by Mr. Dixon this morning in regard to the production of the Leduc field, and if we could have some discussion following that it might help, but if it is going to upset your arrangements, we would defer having Mr. Pot until later one.

MR MARTLAND: It would suit the convenience of the Board to have him called in the morning?

THE CHAIRMAN: I thought it might be best for the record. We have not ascertained whether Mr. Pot can come, but if he can come, will that be suitable?

MR. MARTLAND: That will be suitable to us. It will be quite all right.

THE CHAIRMAN: Well, we will adjourn until tomorrow morning.

(Hearing adjourned until 9.30 A.M. November 7th, 1950).